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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/741,684	12/18/2000	Xm Wong	2855/29	6553

7590 04/25/2006

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EXAMINER

MILLER, BRIAN E

ART UNIT PAPER NUMBER

2627

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/741,684

Applicant(s)

WONG ET AL.

Examiner

Brian E. Miller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7-12 and 19-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-12 and 19-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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Claims 7-12, 19-30 are now pending.

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 4/12/06 has been entered.

***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "disk drive" as recited in claim 7, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the

drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 7-12, 19-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. (a) claim 7, last two lines, the language "wherein the suspension bonding pad comprises a disk drive" renders the claim indefinite, as the metes and bounds of the claim cannot be readily ascertained. The preamble recites "a suspension" which may be a sub-component of a disk drive, however, in no way can a "suspension bonding pad" encompass a disk drive. This newly added limitation is incomprehensible and is thus not addressed in the art rejections below; (b) claim 19, last 3 lines, the language "wherein the slider bonding pad enable the reuse...with heat treatment." renders the claim indefinite. It is not readily apparent what structure of the slider bonding pad permits this to occur; (c) claim 25, last 2 lines the language "wherein the suspension further comprises several bonding bumps for bonding the suspension and a slider connection circuit" renders the claim indefinite. It is not

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readily apparent whether the recited “bonding bumps” are in addition to the already recited “bonding substance,” or, are actually part of the “bonding substance.” Further, the phrase “a slider connection circuit” lacks proper antecedent basis, as it has not been previously recited in the claim, and there is no structural cooperation with other elements of the claim; (d) claim 30, the language “wherein the bonding bumps have a bump height for the solder” is indefinite. There is no “solder” previously set forth in the claim. The claim also inherits the indefiniteness of (c), above.

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 102***

6. Claims 7-11, 19-23, 25-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Albrecht et al (US 5,821,494). Albrecht et al discloses a suspension as shown in at least FIG. 3, and FIGs. 12A-12C) which includes: a suspension 44 with a metal suspension bonding pad 64 for bonding to a magnetic head terminal with a slider bonding pad 62, which includes a bonding substance 122/60 which is a conductive adhesive solder film polymer (see col. 11, lines 16-25) (as per claims 8-11), applied as a surface finishing material, which material is heat treated “prior to bonding to a surface” (see col. 10, lines 50-53 & FIG. 10B). Additionally, as shown in FIG. 12A the slider bonding pad 62 is “initially without bonding substance” and subsequently is electrically bonded to a suspension bonding pad 64 when the bonding substance 60 is reflowed (see FIG. 12C and col. 10, lines 35-53).

The following limitations are addressed in so far as they are definite and understood with respect to the 112 (2) paragraph rejections, set forth above. With respect to claim 19 and the language (last 3 lines, i.e., wherein the slider bonding pad...with heat treatment,” it is understood and well known in the art, that heat treatment will allow a solder connection to melt and permit disconnection of an electrical connection. With respect to claim 25, Albrecht et al discloses “several bonding bumps” 60, as shown in FIG. 4.

7. Claims 7-11, 19-23, 25-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Ainslie et al (US 4,761,699). Ainslie et al discloses a suspension, as shown in FIGs. 4 & 5, including a slider 16 and a suspension 40; a suspension bonding pad 47/63 for electrically bonding to a magnetic head terminal, e.g., a slider bonding pad 41. Additionally, as shown in FIG. 4, the slider bonding pad is initially without bonding substance, such that as in FIG. 6, the suspension bonding pad 47 and slider bonding pad(s) 41, 70 are electrically coupled to each other when the bonding substance is reflowed; further (as per claims 8-11), the bonding substance includes solder 80, 82 and a conductive adhesion film 74, 76, applied as a surface finishing material, which material is heat treated “prior to bonding to a surface” (see col. 7, lines 15-16).

The following limitations are addressed in so far as they are definite and understood with respect to the 112 (2) paragraph rejections, set forth above. With respect to claim 19 and the language (last 3 lines, i.e., wherein the slider bonding pad...with heat treatment,” it is understood and well known in the art, that heat treatment will allow a solder connection to melt and permit disconnection of an electrical connection. With respect to claim 25, Ainslie et al discloses “several bonding bumps” 86, as shown in FIG. 2.

***Claim Rejections - 35 USC § 103***

8. Claims 12, 24, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Albrecht et al or Ainslie et al. Albrecht et al or Ainslie et al are silent as to the dimensions, i.e., height and diameter, of the solder bump, however, Albrecht does teach the slider pads to be no larger than 120 um (see col. 11, lines 19-20) which size slider pad would presumably encompass a solder bump having a diameter equal to or approximate to that dimension. Taking this and the knowledge of a skilled artisan into consideration, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided solder bumps within the claimed dimensions to the respective teachings of Albrecht et al or Ainslie et al. The motivation would have been: lacking any unobvious or unexpected results, the particular solder bump height and diameter would have been provided through routine experimentation and optimization so as to optimize the electrical connection with minimal height usage, which would have been realized by a skilled artisan.

***Response to Amendment***

9. Applicant's comment(s) filed 4/12/06 have been fully considered but they are not persuasive.

A...Applicant's "arguments" do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.


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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian E. Miller whose telephone number is (571) 272-7578. The examiner can normally be reached on M-TH 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**Brian E. Miller**  
**Primary Examiner**  
**Art Unit 2627**

BEM  
April 20, 2006